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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,724	06/12/2001	Dong-Hyuk Ju	F0522	4898

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Renner, Otto,
Boisselle & Sklar, LLP
19th Floor
1621 Euclid Avenue
Cleveland, OH 44115-2191

EXAMINER	
SEFER, AHMED N	
ART UNIT	**PAPER NUMBER**
2826	

DATE MAILED: 04/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/879,724	JU ET AL.	
	Examiner	Art Unit	
	A. Sefer	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5 and 17-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5 and 17-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/10/02 has been entered and claims 4 and 6-10 have been cancelled.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Yokoyama US Patent No. 6,049,091.

Yokoyama discloses in fig. 2 a semiconductor-on-insulator (SOI) structure having a semiconductor substrate 1; a leaky, thermally conductive insulator material (LTCIM) layer 32 disposed directly on the semiconductor substrate; and a semiconductor layer disposed directly on the LTCIM layer, wherein the LTCIM layer comprises doped amorphous silicon, and wherein the LTCIM layer extends over an entire lateral dimension of the semiconductor substrate.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama in view of Be (JP 2001-148479).

Yokoyama discloses in fig. 2 a semiconductor-on-insulator (SOI) structure having a semiconductor substrate 1 or silicon (as in claim 2); a leaky, thermally conductive insulator material (LTCIM) layer 32 disposed directly on the semiconductor substrate; and a semiconductor layer disposed directly on the LTCIM layer, wherein the LTCIM layer comprises doped amorphous silicon, and wherein the LTCIM layer extends over an entire lateral dimension of the semiconductor substrate, but do not disclose an isolation trench and LTCIM layer defining active regions.

Be discloses in fig. 2 active region defined in a semiconductor layer by isolation trenches 33a and an LTCM layer 23b or a gate defining a channel interposed between a source and a drain formed with an active region of the SOI structure (as in claims 17 and 19).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Be with the device of Yokoyama, since that would provide a high performance, high density and high speed device.

6. Claims 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama in view of Chu et al. US PG-Pub No. 2002/0096717.

Yokoyama discloses in fig. 2 a semiconductor-on-insulator (SOI) structure having a semiconductor substrate 1 or silicon (as in claim 2); a leaky, thermally conductive insulator material (LTCIM) layer 32 disposed directly on the semiconductor substrate; and a semiconductor layer disposed directly on the LTCIM layer, wherein the LTCIM layer comprises doped amorphous silicon, and wherein the LTCIM layer extends over an entire lateral dimension of the semiconductor substrate, but do not disclose an isolation trench and LTCIM layer defining active regions.

Chu et al disclose (see fig. 2 page 4, par. 0032 and claim 11) active region defined in a semiconductor layer by isolation trenches 142 and an LTCM layer 120.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Chu et al with the device of Yokoyama, since that would provide a high performance, high density and high speed device.

As to claims 3 and 5, Chu et al. disclose a leaky, thermally conductive insulator material (LTCIM) layer 120 with a thermal conductivity which falls within the claimed range (as in claim 3) with a resistivity value 10 Ω-cm or greater (as in claim 5) disposed directly on the semiconductor substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (703) 605-1227.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601.

ANS
March 29, 2003

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800